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L95 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:914376** HCAPLUS
DN **138:126864**
TI **Cationic Polysaccharides** for **Gene** Delivery
AU Azzam, Tony; Raskin, Arthur; Makovitzki, Arik; Brem, Henry; Vierling, Pierre; Lineal, Michal; **Domb, Abraham J.**
CS Department of Medicinal Chemistry and Natural Products, School of Pharmacy-Faculty of Medicine, Hebrew University, Jerusalem, 91120, Israel
SO Macromolecules (2002), 35(27), 9947-9953
CODEN: MAMOBX; ISSN: 0024-9297
PB American Chemical Society
DT Journal
LA English
CC 63-5 (Pharmaceuticals)
Section cross-reference(s): **33**
AB **Cationic polysaccharides** based on **spermine-dextran** conjugates were synthesized and tested as vectors for **gene transfection**. **Dextrans** of 10-380 kDa were oxidized under mild conditions by potassium periodate to obtain the resp. polyaldehydes in 90% overall yield. The oxidized **dextrans** were reacted by reductive **amination** with increasing amts. of **spermine**, and the efficacy of conjugation between the **oligoamine** and **polysaccharides** was studied as a function of **spermine**/aldehyde mole ratio, pH, and temp. of medium. The optimal conjugation yields were obtained at 1.25 mol ratio (**spermine**/aldehyde groups) and pH 11 at room temp. Under these conditions, .apprx.2 .mu.mol/mg (**spermine/polysaccharide**) conjugation was achieved with 25-30% of the **spermine** moieties were conjugated in both sides to form **branched** polymers. The water-sol. polymers obtained were interacted with pCMV-GFP **plasmid** to form nanoparticles that were introduced to HEK293 and NIH3T3 cells in vitro for **transfection** efficacy assessment. Out of about 50 different polymer structures, only **spermine-dextran** of 6000-8000 Da, **spermine** content of .apprx.2 .mu.mol/mg, and degree of **branching** of 25-30% was active in **transfecting** about 50% of the cells while all other polymers were significantly less active.

ST **cationic polysaccharide gene** delivery; **dextran spermine** conjugate prepn **gene** delivery

IT Transformation, genetic
(**cationic polysaccharides** for **gene** delivery)

IT **Polysaccharides, biological studies**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**cationic polysaccharides** for **gene** delivery)

IT Drug delivery systems
(**gene**; **cationic polysaccharides** for **gene** delivery)

IT Drug delivery systems
(nanoparticles; **cationic polysaccharides** for **gene** delivery)

IT **71-44-3DP**, reaction product with **dextran** dicarboxaldehyde, reduced 37317-99-0DP, reaction product with **spermine**, reduced
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**cationic polysaccharides** for **gene** delivery)

IT **71-44-3**, **Spermine 9004-54-0**, **Dextran**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**cationic polysaccharides** for **gene** delivery)

IT 37317-99-0P, **Dextran** dialdehyde
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**cationic polysaccharides** for **gene** delivery)

RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD

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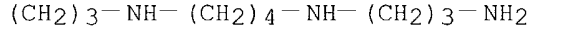
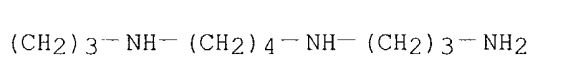
IT **71-44-3DP**, reaction product with **dextran** dicarboxaldehyde, reduced
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**cationic polysaccharides** for **gene** delivery)
RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



IT **71-44-3, Spermine 9004-54-0, Dextran**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**cationic polysaccharides** for **gene** delivery)
RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN 2002:778838 HCAPLUS
TI **Cationic polysaccharides** as vectors for **gene** delivery
AU **Domb, Abraham J.**
CS Medicinal Chemistry and Natural Products - School of Pharmacy - Faculty of Medicine, Hebrew University, Jerusalem, 91120, Israel
SO Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (2002), POLY-673 Publisher: American Chemical Society, Washington, D. C.
CODEN: 69CZPZ
DT Conference; Meeting Abstract
LA English
AB This work describes a versatile **polycation** system based on **oligoamines** grafted on natural **polysaccharides** that are capable of complexing various **plasmids** and administering them into various cell-types in high yield to produce a desired **protein**. The developed **biodegradable polycations** are based on **spermine**, a natural tetra-**amine**, conjugated on **dextran polysaccharide** via the reductive-**amination** method. Different **polycations** were prepd.

starting from various **polysaccharides** and **oligoamines** of 2 to 6 **amino** groups. Although, most of these conjugates formed stable complexes with various **plasmids** as detd. by turbidity expts., only the **dextran-spermine** based conjugate was found to be highly active in **transfecting** a no. of cell-lines in vitro. **Hydrophobization** of the representative **polycation** with natural **fatty** acids (satd. and unsatd.) improved the **transfection** yield in serum rich medium.

L95 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:643912** HCAPLUS
TI Synthesis and **biodegradation** of **arabinogalactan** sponges prepared by reductive **amination**
AU Ehrenfreund-Kleinman, T.; Gazit, Z.; Gazit, D.; Azzam, T.; Golenser, J.; **Domb, A. J.**
CS Faculty of Medicine, Hadassah Medical Center, School of Pharmacy, Department of Medicinal Chemistry and Natural Products, The Hebrew University of Jerusalem, Jerusalem, 91120, Israel
SO Biomaterials (2002), 23(23), 4621-4631
CODEN: BIMADU; ISSN: 0142-9612
PB Elsevier Science Ltd.
DT Journal
LA English
CC 63 (Pharmaceuticals)
AB The synthesis of **polysaccharide**-based sponges for the use in tissue engineering was systematically investigated. A comparison study of the **branched polysaccharide arabinogalactan** (AG) and the linear **polysaccharide dextran** in the formation of sponges by the reaction with **diamines** or **polyamines** was conducted. Three AG-based sponges were synthesized from the **crosslinking** reaction with different **amine** mols. The sponges obtained were highly porous, rapidly swelled in water, and were stable in vitro for at least 11 wk in aq. media at 37.degree.C. AG-**chitosan** sponges were chosen as most suitable to serve as **scaffolds** for cell growth in tissue engineering. The biocompatibility in vivo of these sponges was evaluated by histol. staining and non-invasive MRI technique after implantation in BALB/c mice. The sponge evoked an inflammatory response with vascularization of the implant. The inflammatory reaction decreased with time, indicating a healing process.
RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L95 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN 2002:624972 HCAPLUS
TI **Cationic polysaccharides** as vectors for **gene** delivery
AU Azzam, T.; Eliyahu, H.; Raskin, A.; Makovitzki, A.; Barenholz, Y.; Lineal, M.; **Domb, Abraham J.**
CS Department of Medicinal Chemistry and Natural Products, School of PHarmacy - Faculty of Medicine, The Hebrew University of Jerusalem, Israel
SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2002), 43(2), 671-672
CODEN: ACPPAY; ISSN: 0032-3934
PB American Chemical Society, Division of Polymer Chemistry
DT Journal; (computer optical disk)
LA English
CC 63 (Pharmaceuticals)
AB Over 300 **cationic** conjugates were prepd. based on **spermine**, a natural **tetramine**, grafted on **dextran** that is capable of complexing various **plasmids** and administering them into various cells with high yield to produce a desired **protein**. All polymers were evaluated for their **transfection** activity using various cell types and marker **genes**. Although most of the conjugates formed stable complexes with **DNAs** as revealed by ethidium bromide quenching assay, but only **dextran-spermine** based conjugate was highly active in **transfecting** a wide range of cell lines. **Hydrophobization** of **dextran-spermine** based conjugates enhanced the **transfection** efficiency in-vitro in serum-free and serum contg. media.
ST **cationic polysaccharide gene** delivery **spermine dextran** polymer conjugate **transfection**
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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L95 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:536420** HCAPLUS
DN **137:99004**
TI **Cationic polysaccharide** compositions for **gene** transfer
IN **Domb, Abraham J.**
PA Polygene Ltd., Israel
SO Eur. Pat. Appl., 34 pp.
CODEN: EPXXDW
DT Patent
LA English

IC ICM A61K031-715
ICS C08L005-00; C08L005-02; C08B037-00; A61K048-00; A61K047-48
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1, 3, **33**, 74
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1222926	A1	20020717	EP 2002-250178	20020110
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2002146826	A1	20021010	US 2002-44538	20020110
PRAI	IL 2001-140844	A	20010110		

AB A **polycation** compn. comprises (i) a **polysaccharide chain** having an amt. of **saccharide** units ranging from 2 to 2000, (ii) at least one **oligoamine** directly grafted to said **polysaccharide chain** per each segment of 5 **saccharide** units, wherein said **oligoamine** is selected from the group consisting of a linear, **branched** and cyclic alkyl **amine** having at least two **amino** groups, and (iii) at least one further grafted group selected from the group consisting of a **hydrophobic** and an **amphiphilic** group directly grafted to said **polysaccharide chain** per each segment of 50 **saccharide** units, wherein said **hydrophobic** or **amphiphilic** group includes an aliph. **chain** of at least 4 carbons atoms. For example, **hydrophobized spermine-dextran polycations** gave **transfection** values at 0.2 charge ratio (-/+). **Hydrophobized polycations** (10% or 20% **fatty chain**, mol/mol) gave the best **transfection** efficacy at 0.25 charge ratio (-/+). **Hydrophobized polycations** remarkably increase **transfection**, by at least 2 fold. However, the **fatty** acid side groups, stearate, octanoate, and myristate were less active than **oleate** derivs.

ST **cationic polysaccharide** conjugate prepn **gene** transfer; **polysaccharide oligoamine hydrophobic amphiphilic** polymer graft prepn

IT **Polysaccharides, reactions**
RL: RCT (Reactant); RACT (Reactant or reagent)
(acidic; **cationic polysaccharide** compns. for **gene** transfer)

IT Polyelectrolytes
(**anionic; cationic polysaccharide** compns. for **gene** transfer)

IT Polymer degradation
(biol.; **cationic polysaccharide** compns. for **gene** transfer)

IT Drug delivery systems
(capsules, controlled-release; **cationic polysaccharide** compns. for **gene** transfer)

IT Drug delivery systems
(capsules, sustained-release; **cationic polysaccharide** compns. for **gene** transfer)

IT Lipids, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**cationic** and nonionic, **combination** with; **cationic polysaccharide** compns. for **gene** transfer)

IT Animal
Gene therapy
Human
(**cationic polysaccharide** compns. for **gene therapy**)

IT Drug delivery systems

Plasmid vectors
Transformation, genetic
(**cationic polysaccharide** compns. for **gene** transfer)

IT **Antisense oligonucleotides**
Fatty acids, reactions
Ligands
Oligonucleotides
Peptides, reactions
Phospholipids, reactions
Polyamines
Polysaccharides, reactions
Proteins
RL: RCT (Reactant); RACT (Reactant or reagent)
(**cationic polysaccharide** compns. for **gene** transfer)

IT Electric circuits
Printing (impact)
Printing (nonimpact)
(**cationic polysaccharide** compns. for **gene** transfer and non-medical **applications**)

IT Polyelectrolytes
(**cationic; cationic polysaccharide** compns. for **gene** transfer)

IT **Polysaccharides, biological studies**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**cationic; cationic polysaccharide** compns. for **gene** transfer)

IT Cosmetics
(conditioners; **cationic polysaccharide** compns. for **gene** transfer and non-medical **applications**)

IT **DNA**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(conjugates; **cationic polysaccharide** compns. for **gene** transfer)

IT Drug delivery systems
(controlled-release, matrix for; **cationic polysaccharide** compns. for **gene** transfer)

IT **Amines**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**diamines**, condensation products with **aldaric acid; cationic polysaccharide** compns. for **gene** transfer)

IT Carboxylic acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(dicarboxylic, aldaric, condensation products with diaminoalkanes; **cationic polysaccharide** compns. for **gene** transfer)

IT Polyoxyalkylenes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**fatty chain** block-contg.; **cationic polysaccharide** compns. for **gene** transfer)

IT Drug delivery systems
(**gene; cationic polysaccharide** compns. for **gene therapy**)

IT Drug delivery systems
(implants, controlled-release, **scaffolds; cationic polysaccharide** compns. for **gene** transfer)

IT Drug delivery systems
(implants, sustained-release; **cationic polysaccharide** compns. for **gene** transfer)

IT **Nucleic** acids
RL: RCT (Reactant); RACT (Reactant or reagent)
(poly-; **cationic polysaccharide** compns. for **gene** transfer)

IT Drug delivery systems
(sustained-release, matrix for; **cationic polysaccharide** compns. for **gene** transfer)

IT Animal cell
Animal tissue
(targeting; **cationic polysaccharide** compns. for **gene** transfer)

IT 9002-72-6, Somatotropin
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**cationic polysaccharide** compns. for **gene** transfer)

IT 57-88-5D, **Cholesterol**, derivs. **71-44-3**, **Spermine** 112-16-3, Lauroyl chloride 112-76-5, Stearoyl chloride 112-77-6, Oleoyl chloride 112-90-3, **Oleylamine** **528-50-7**, Cellobiose 605-65-2, Dansyl chloride 687-64-9 6066-82-6, N-Hydroxysuccinimide 7144-08-3, **Cholesteryl** chloroformate 7693-46-1, p-Nitrophenyl chloroformate **9002-98-6** **9004-54-0**, **Dextran**, reactions **9004-61-9**, **Hyaluronic acid** 9004-74-4, MPEG **9005-32-7**, **Alginic acid** **9005-80-5**, **Inulin** **9012-76-4**, **Chitosan** **9036-66-2**, **Arabinogalactan** **9057-02-7**, **Pullulan** 114459-62-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(**cationic polysaccharide** compns. for **gene** transfer)

IT **71-44-3DP**, **Spermine**, reaction product with **dextran** dialdehyde 14464-30-3P 14464-32-5P 14565-47-0P 19728-66-6P, L-**Lysine** hydrazide 22102-92-7P 37317-99-0DP, **Dextran** dialdehyde, reaction product with **spermine** 37317-99-0P, **Dextran** dialdehyde 42014-50-6P 69888-86-4P 69888-88-6P 81480-40-2P 124661-64-9DP, reaction product with **dextran-spermine** conjugates 124661-64-9P 159592-24-2P 359847-18-0P 442515-52-8P 442515-53-9P 442515-54-0P 442515-55-1P 442515-56-2P 442515-57-3P 442515-58-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**cationic polysaccharide** compns. for **gene** transfer)

IT **71-44-3DP**, **Spermine**, reaction product with oxidized **dextran** 112-90-3DP, **Oleylamine**, reaction product with oxidized **dextran** **124-20-9DP**, **Spermidine**, conjugates with **chitosan** **9004-61-9DP**, **Hyaluronic acid**, **polysaccharide** conjugates 9005-49-6DP, Heparin, **polysaccharide** conjugates **9012-76-4DP**, **Chitosan**, conjugates with **oligoamines** **9036-66-2DP**, **Arabinogalactan**, reaction products with **polysaccharides** 14464-30-3DP, reaction product with **dextran-spermine** conjugates 14464-32-5DP, reaction product with **dextran-spermine** conjugates 14565-47-0DP, reaction product with **dextran-spermine** conjugates 22102-92-7DP, reaction product with **dextran-spermine** conjugates 33008-06-9DP, Dansyl hydrazine, reaction product with **dextran-spermine** conjugates 42014-50-6DP, reaction product with **dextran-spermine** conjugates 69888-86-4DP, reaction product with **dextran-spermine** conjugates 69888-88-6DP, reaction product with **dextran-spermine** conjugates

81480-40-2DP, reaction product with **dextran-spermine** conjugates 159592-24-2DP, reaction product with **dextran-spermine** conjugates 359847-18-0DP, reaction product with **dextran-spermine** conjugates 442515-53-9DP, reaction product with **dextran-spermine** conjugates
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**cationic polysaccharide** compns. for **gene** transfer)

IT 25322-68-3, Poly(ethylene glycol) 25322-69-4, Poly(propylene glycol)
RL: RCT (Reactant); RACT (Reactant or reagent)
(**fatty chain** block-contg.; **cationic polysaccharide** compns. for **gene** transfer)

IT **71-44-3DP, Spermine**, quaternized or conjugates with **chitosan**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(hydrophilic head group-contg.; **cationic polysaccharide** compns. for **gene** transfer)

IT **56-87-1**, L-**Lysine**, biological studies **70-26-8**, L-**Ornithine 74-79-3**, L-**Arginine**, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**peptides** contg.; **cationic polysaccharide** compns. for **gene** transfer)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

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(4) Nippon Oils & Fats Co Ltd; EP 0370810 A 1990 HCAPLUS
(5) Univ Iowa Res Found; WO 9746223 A 1997 HCAPLUS

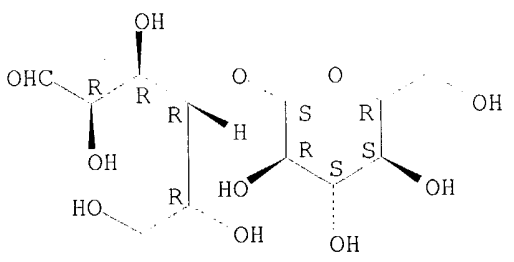
IT **71-44-3, Spermine 528-50-7**, Cellobiose **9002-98-6 9004-54-0, Dextran**, reactions **9004-61-9, Hyaluronic acid 9005-32-7, Alginic acid 9005-80-5, Inulin 9012-76-4, Chitosan 9036-66-2, Arabinogalactan 9057-02-7, Pullulan**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**cationic polysaccharide** compns. for **gene** transfer)

RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 528-50-7 HCAPLUS
CN D-Glucose, 4-O-.beta.-D-glucopyranosyl- (6CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-32-7 HCAPLUS
CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9005-80-5 HCAPLUS
CN Inulin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9012-76-4 HCAPLUS
CN Chitosan (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

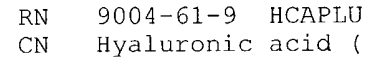
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9057-02-7 HCAPLUS
CN Pullulan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **71-44-3DP, Spermine**, reaction product with **dextran** dialdehyde
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**cationic polysaccharide** compns. for **gene** transfer)
RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

IT **124-20-9DP, Spermidine**, conjugates with **chitosan**
9004-61-9DP, Hyaluronic acid, **polysaccharide** conjugates **9012-76-4DP, Chitosan**, conjugates with **oligoamines 9036-66-2DP, Arabinogalactan**, reaction products with **polysaccharides**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(**cationic polysaccharide** compns. for **gene** transfer)
RN 124-20-9 HCAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

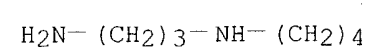


RN 9004-61-9 HCAPLUS
CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9012-76-4 HCAPLUS
CN Chitosan (8CI, 9CI) (CA INDEX NAME)

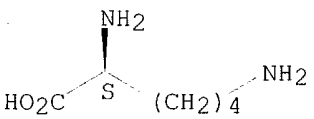
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **71-44-3DP, Spermine**, quaternized or conjugates with **chitosan**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(hydrophilic head group-contg.; **cationic polysaccharide** compns. for **gene** transfer)
RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



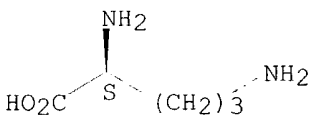
IT **56-87-1**, L-**Lysine**, biological studies **70-26-8**, L-**Ornithine 74-79-3**, L-**Arginine**, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**peptides** contg.; **cationic polysaccharide** compns. for **gene** transfer)
RN 56-87-1 HCAPLUS
CN L-Lysine (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 70-26-8 HCAPLUS
CN L-Ornithine (9CI) (CA INDEX NAME)

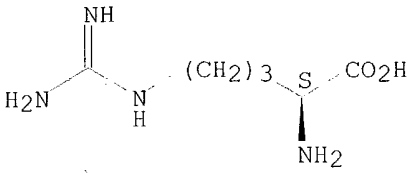
Absolute stereochemistry.



RN 74-79-3 HCAPLUS

CN L-Arginine (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L95 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:350566** HCAPLUS
DN **138:112169**
TI Highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**
AU Azzam, T.; Makovitzki, A.; Eliyahu, H.; Raskin, A.; Linial, M.; Bernholz, Y.; **Domb, A. J.**
CS Department of Medicinal Chemistry and Natural Products, The Hebrew University, Jerusalem, 91120, Israel
SO Proceedings - 28th International Symposium on Controlled Release of Bioactive Materials and 4th Consumer & Diversified Products Conference, San Diego, CA, United States, June 23-27, 2001 (2001), Volume 2, 1187-1188
Publisher: Controlled Release Society, Minneapolis, Minn.
CODEN: 69CNY8
DT Conference
LA English
CC 63-5 (Pharmaceuticals)
AB A new class of **polycations** based on **oligoamine** conjugated on natural **polysaccharides** have been synthesized and tested for their activity as **gene** carriers. The **transfection** efficiency was evaluated in-vitro in a few cell types using several **plasmid** marker **genes**. From about 100 different conjugate derivs. only a few showed to be effective in **gene transfection**. The most effective **polycation** was **spermine**, a natural alkyl tetra-**amine**, grafted on **dextran**.
ST targetted drug delivery **polycation polysaccharide transfection gene therapy**
IT Animal cell line
(3T3; highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)
IT Animal cell line
(Hek 293; highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)
IT **Gene therapy**
Human
Transformation, genetic
(highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)
IT **DNA**
Polysaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)
IT **Cations**
(polyvalent; highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)
IT Drug delivery systems
(targetted; highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)

IT **71-44-3D, Spermine**, conjugate with **arabinogalactan, dextran** or **pullulan** **124-20-9D, Spermidine**, conjugate with **dextran** **9002-98-6D**, conjugate with **arabinogalactan** or **dextran 9004-54-0D, Dextran**, conjugate with **spermine, polyethyleneimine, spermidine** **9036-66-2D, Arabinogalactan**, conjugate with **spermine** or **polyethyleneimine 9057-02-7D, Pullulan**, conjugate with **spermine 26545-55-1, Propanediamine**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)

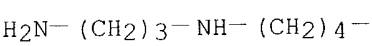
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Domb, A; Technomic 1999, V2, P1 HCAPLUS
(2) Israel, Z; Poly Adc Tech 1998, V9, P799 HCAPLUS
(3) Marcel, T; Human Gene Ther 1997, P775 HCAPLUS

IT **71-44-3D, Spermine**, conjugate with **arabinogalactan, dextran** or **pullulan** **124-20-9D, Spermidine**, conjugate with **dextran** **9002-98-6D**, conjugate with **arabinogalactan** or **dextran 9004-54-0D, Dextran**, conjugate with **spermine, polyethyleneimine, spermidine** **9036-66-2D, Arabinogalactan**, conjugate with **spermine** or **polyethyleneimine 9057-02-7D, Pullulan**, conjugate with **spermine 26545-55-1, Propanediamine**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(highly active **polysaccharide** based **polycations** for **DNA** cell **transfection**)

RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 HCAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

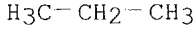
RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9057-02-7 HCAPLUS
CN Pullulan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 26545-55-1 HCAPLUS
CN Propanediamine (8CI, 9CI) (CA INDEX NAME)



L95 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:246129** HCAPLUS
DN **137:299706**
TI Nanoparticles and polymeric vesicles from new **poly**-L-**lysine** based **amphiphiles**
AU Uchegbu, Ijeoma F.; Tetley, Laurence; Wang, Wei
CS Department of Pharmaceutical Sciences, University of Strathclyde, Glasgow, G4 0NR, UK
SO Materials Research Society Symposium Proceedings (2001), 662(Biomaterials for Drug Delivery and Tissue Engineering), NN6.8/1-NN6.8/6
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
CC 63-5 (Pharmaceuticals)
AB Nanoparticles and polymeric vesicles for drug delivery and other industrial **applications** have been prepd. by the probe **sonication** of **poly**-L-**lysine** graft copolymer **amphiphiles** in aq. media. The **amphiphiles**, which have a **poly**-L-**lysine** backbone and varied levels of both hydrophilic methoxypolyethylene glycol (Mw .apprx. 5,000) and **hydrophobic** palmitoyl pendant groups, were prepd. from 2 different mol. wt. **poly**-L-**lysine** hydrobromide samples (Mw .apprx.4,000 and .apprx.20,000 resp.). **Poly**-L-**lysine** based **amphiphilic** polymers (PLPs) were characterized using light scattering, 1H NMR and an assay for the level of free amino groups. Steric factors appear to limit the final level of **lysine** group **modification** that can be achieved and even an excess amt. of grafting reactants still resulted in the prodn. of polymers in which 22 - 26 mol% of the **lysine** terminal amino groups remain unsubstituted. Polymeric unilamellar vesicles (220 - 570nm in diam.) imaged by **electron** microscopy were produced by probe **sonication** of PLP, **cholesterol**. Vesicle formation was possible over a narrow spectrum of polymer architecture and was favored by a low mol. wt. and a low level of palmitoyl substitution. Probe **sonication** of an aq. dispersion of PLP samples resulted in the prodn. of stable nanoparticles (80 - 170nm in diam.) as imaged by **electron** microscopy. Nanoparticles were able to encapsulate the hydrophilic fluorophore fluorescein isothiocyanate (FITC)-**dextran** and encapsulation increased as the level of unreacted **lysine** terminal amino groups in PLP increased thus increasing as the level of hydrophilic domains increased. The size of both the nanoparticles and the

vesicles was directly influenced by the mol. wt. of PLP. PLPs of mol. wt. 32,000 - 48,000 and 89,000 - 140,000 resulted in nanoparticles of 85 - 114 nm and 125 - 167 nm in diam. resp. and PLP of mol. wt. 25,000 and 89,000 gave rise to polymeric vesicles of 252 nm and 570 nm in diam. resp.

ST **polylysine** PEG palmitoyl vesicle nanoparticle

IT Drug delivery systems
(liposomes; nanoparticles and polymeric vesicles from **poly**-L-**lysine**-based **amphiphiles**)

IT Encapsulation
(nanoparticles and polymeric vesicles from **poly**-L-**lysine**-based **amphiphiles**: FITC-**dextran** encapsulation)

IT Drug delivery systems
(nanoparticles; nanoparticles and polymeric vesicles from **poly**-L-**lysine**-based **amphiphiles**)

IT 57-88-5, **Cholesterol**, biological studies 14464-31-4D, **polylysine amide** derivs. **38000-06-5D**, **palmitamide**, polyethylene glycol **amide** derivs. 124661-64-9D, **polylysine amide** derivs.
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(nanoparticles and polymeric vesicles from **poly**-L-**lysine**-based **amphiphiles**)

IT **25104-18-1, Poly**-L-**lysine 38000-06-5, Poly**-L-**lysine**
RL: RCT (Reactant); RACT (Reactant or reagent)
(nanoparticles and polymeric vesicles from **poly**-L-**lysine**-based **amphiphiles**)

IT 60842-46-8, FITC-**dextran**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(nanoparticles and polymeric vesicles from **poly**-L-**lysine**-based **amphiphiles**: FITC-**dextran** encapsulation)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD

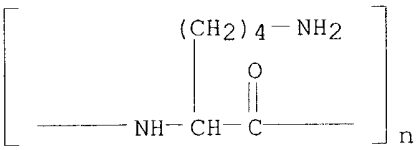
RE

(1) Asayama, S; Bioconjug Chem 1998, V9, P476 HCAPLUS
(2) Brown, M; Bioconjug Chem in press
(3) Choi, J; Bioconjug Chem 1999, V10, P62 HCAPLUS
(4) Katayose, S; Bioconjug Chem 1997, V8, P702 HCAPLUS
(5) Snyder, S; Anal Biochem 1975, V64, P284 HCAPLUS
(6) Toncheva, V; Biochim Biophys Acta 1998, V1380, P354 HCAPLUS
(7) Uchegbu, I; J Pharm Pharmacol 1998, V50, P453 HCAPLUS
(8) Wang, W; Langmuir 2000, V16, P7859 HCAPLUS
(9) Wang, W; Langmuir in press
(10) Zhou, X; Biochim Biophys Acta 1991, V1065, P8 HCAPLUS

IT **38000-06-5D, palmitamide**, polyethylene glycol **amide** derivs.
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(nanoparticles and polymeric vesicles from **poly**-L-**lysine**-based **amphiphiles**)

RN 38000-06-5 HCAPLUS

CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)

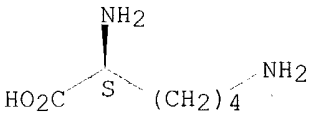


IT **25104-18-1, Poly-L-lysine 38000-06-5**
, Poly-L-lysine
RL: RCT (Reactant); RACT (Reactant or reagent)
(nanoparticles and polymeric vesicles from **poly-L-lysine**-based **amphiphiles**)
RN 25104-18-1 HCAPLUS
CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

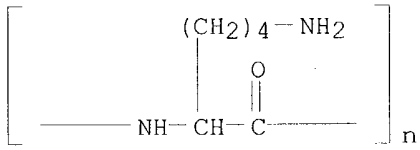
CM 1

CRN 56-87-1
CMF C6 H14 N2 O2

Absolute stereochemistry.



RN 38000-06-5 HCAPLUS
CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:237763** HCAPLUS
DN **137:10872**
TI **Polysaccharide-Oligoamine** Based Conjugates for **Gene** Delivery
AU Azzam, Tony; Eliyahu, Hagit; Shapira, Libi; Linial, Michal; Barenholz, Yechezkel; **Domb, Abraham J.**
CS Department of Medicinal Chemistry and Natural Products, School of Pharmacy, Faculty of Medicine, The Hebrew University, Jerusalem, 91120, Israel
SO Journal of Medicinal Chemistry (2002), 45(9), 1817-1824
CODEN: JMCMAR; ISSN: 0022-2623
PB American Chemical Society
DT Journal
LA English
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 3, **33**
AB This work describes a versatile and universal **polycation** system based on **oligoamines** grafted on natural **polysaccharides** that is capable of complexing various **plasmids** and administering them into various cells in high yield to produce a desired **protein**

. These **polycations** are expected to better meet the requirements for effective complexation and delivery of **plasmid** or an **antisense** and to **biodegrade** into nontoxic components at a controlled rate. The developed **biodegradable polycations** are based on **spermine**, a natural **tetramine**, conjugated to **dextran** or **arabinogalactan**. These **polycations** were prepd. by reductive **amination** of oxidized **polysaccharides** with the desired **oligoamines**. The Schiff base conjugates thus obtained were reduced to the stable **amine** conjugates by sodium borohydride. Over 300 different **polycations** were prepd. starting from various **polysaccharides** and **oligoamines**, mainly **oligoamines** of 2-4 **amino** groups. Although most of these conjugates formed stable complexes with various **plasmids** as detd. by turbidity expts., only a few **polycations** were active in **transfecting** cells. Thus, the structure of the **polycation** plays a significant role in the **transfection** activity of **polycations**.

ST **polysaccharide oligoamine** conjugate **gene** delivery prepn

IT Animal cell line
(3T3; **polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT Animal cell line
(EPC; **polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT Animal cell line
(Hek 293; **polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT **Polyamines**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(conjugates with **dextran** aldehyde; **polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT **Amines**, biological studies
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(conjugates, with **dextran** aldehyde; **polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT Drug delivery systems
Gene therapy
Human
Molecular weight distribution
Oxidation
Plasmid vectors
Transformation, genetic
(**polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT **9004-54-0, Dextran**, reactions **9036-66-2, Arabinogalactan**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT 37317-99-0DP, reaction product with **oligamines**, reduced
37317-99-0P, **Dextran** dialdehyde
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**polysaccharide-oligoamine**-based conjugates for **gene** delivery)

IT **71-44-3DP, Spermine**, reaction product with **dextran** dialdehyde, reduced **107-15-3DP**, 1,2-**Ethanediamine**, reaction product with **dextran** dialdehyde, reduced **109-76-2DP**, 1,3-**Propanediamine**, reaction

product with **dextran** dialdehyde, reduced **110-60-1DP**, 1,4-**Butanediamine**, reaction product with **dextran** dialdehyde, reduced 110-70-3DP, reaction product with **dextran** dialdehyde, reduced **111-40-0DP**, reaction product with **dextran** dialdehyde, reduced **124-09-4DP**, 1,6-**Hexanediamine**, reaction product with **dextran** dialdehyde, reduced **124-20-9DP**, **Spermidine**, reaction product with **dextran** dialdehyde, reduced 373-44-4DP, 1,8-**Octanediamine**, reaction product with **dextran** dialdehyde, reduced 929-59-9DP, reaction product with **dextran** dialdehyde, reduced **4605-14-5DP**, reaction product with **dextran** dialdehyde, reduced **4741-99-5DP**, reaction product with **dextran** dialdehyde, reduced **9002-98-6DP**, Aziridine homopolymer, reaction products with **dextran** dialdehyde, reduced **9036-66-2DP**, **Arabinogalactan**, oxidized, reaction products with **oligoamines**, reduced **10563-26-5DP**, reaction product with **dextran** dialdehyde, reduced
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**polysaccharide-oligoamine**-based conjugates for **gene** delivery)

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Abdllah, B; Hum Gene Ther 1996, V7, P1947
(2) Anderson, W; Science 1992, V256, P808 MEDLINE
(3) Aoki, K; Cancer Res 1995, V55, P3810 HCAPLUS
(4) Belinska, A; Nucleic Acids Res 1996, V24, P2176
(5) Boussif, O; Gene Ther 1996, V3, P1074 HCAPLUS
(6) Carter, A; J Polym Sci, Part A: Polym Chem 2000, V38(21), P3892 HCAPLUS
(7) Crystal, R; Science 1995, V270, P404 HCAPLUS
(8) de Smedt, S; Pharm Res 2000, V17(2), P113 HCAPLUS
(9) Domb, A; Polymers in Gene Therapy:Frontiers in Biological Polymer Application 1999, V2, P1 HCAPLUS
(10) Fakhrai, H; Proc Natl Acad Sci U S A 1996, V93, P2909 HCAPLUS
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(13) Huiru, Z; Pharm Res 1991, V8, P400
(14) Ioan, C; Macromolecules 2000, V33(15), P5730 HCAPLUS
(15) Israel, Z; Polym Adv Technol 1998, V9(10-11), P799 HCAPLUS
(16) Koltover, I; Science 1998, V281, P78 HCAPLUS
(17) Larsen, C; Dextran prodrugs 1990
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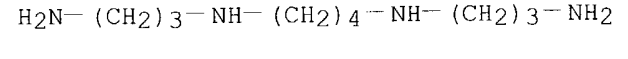
IT **9004-54-0**, **Dextran**, reactions **9036-66-2**, **Arabinogalactan**
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polysaccharide-oligoamine**-based conjugates for **gene** delivery)

RN 9004-54-0 HCAPLUS

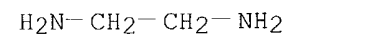
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

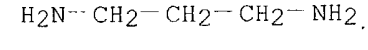
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **71-44-3DP, Spermine**, reaction product with **dextran** dialdehyde, reduced **107-15-3DP**, 1,2-**Ethanediamine**, reaction product with **dextran** dialdehyde, reduced **109-76-2DP**, 1,3-**Propanediamine**, reaction product with **dextran** dialdehyde, reduced **110-60-1DP**, 1,4-**Butanediamine**, reaction product with **dextran** dialdehyde, reduced **111-40-0DP**, reaction product with **dextran** dialdehyde, reduced **124-09-4DP**, 1,6-**Hexanediamine**, reaction product with **dextran** dialdehyde, reduced **124-20-9DP**, **Spermidine**, reaction product with **dextran** dialdehyde, reduced **4605-14-5DP**, reaction product with **dextran** dialdehyde, reduced **4741-99-5DP**, reaction product with **dextran** dialdehyde, reduced **9002-98-6DP**, Aziridine homopolymer, reaction products with **dextran** dialdehyde, reduced **9036-66-2DP**, **Arabinogalactan**, oxidized, reaction products with **oligoamines**, reduced **10563-26-5DP**, reaction product with **dextran** dialdehyde, reduced
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**polysaccharide-oligoamine**-based conjugates for **gene** delivery)
RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 107-15-3 HCAPLUS
CN 1,2-Ethanediamine (9CI) (CA INDEX NAME)

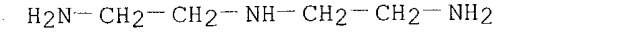


RN 109-76-2 HCAPLUS
CN 1,3-Propanediamine (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 110-60-1 HCAPLUS
CN 1,4-Butanediamine (8CI, 9CI) (CA INDEX NAME)

RN 111-40-0 HCAPLUS
CN 1,2-Ethanediamine, N-(2-aminoethyl)- (9CI) (CA INDEX NAME)



RN 124-09-4 HCAPLUS

CN 1,6-Hexanediamine (7CI, 8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_6-NH_2$

RN 124-20-9 HCAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 4605-14-5 HCAPLUS
CN 1,3-Propanediamine, N,N'-bis(3-aminopropyl)- (9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_3-NH-(CH_2)_3-NH_2$

RN 4741-99-5 HCAPLUS
CN 1,3-Propanediamine, N,N'-bis(2-aminoethyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-CH_2-CH_2-NH-(CH_2)_3-NH-CH_2-CH_2-NH_2$

RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 10563-26-5 HCAPLUS
CN 1,3-Propanediamine, N,N''-1,2-ethanediylbis- (9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-CH_2-CH_2-NH-(CH_2)_3-NH_2$

L95 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2002:89175** HCAPLUS
DN **137:206387**
TI Synthesis and characterization of novel water soluble amphotericin B-**arabinogalactan** conjugates
AU Ehrenfreund-Kleinman, T.; Azzam, T.; Falk, R.; Polacheck, I.; Golenser, J.; **Domb, A. J.**
CS Department of Medicinal Chemistry and Natural Products, The Hebrew University of Jerusalem, Faculty of Medicine, School of Pharmacy, Jerusalem, 91120, Israel

SO Biomaterials (2002), 23(5), 1327-1335
CODEN: BIMADU; ISSN: 0142-9612
PB Elsevier Science Ltd.
DT Journal
LA English
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1
AB The coupling of amphotericin B (AmB), a water-insol. antifungal agent, to **arabinogalactan** (AG) via an **imine** or **amine** bond was systematically investigated. AG was oxidized using potassium periodate, purified from the oxidizing agent using ion-exchange chromatog., and reacted with AmB to form the Schiff base. The Schiff base was reduced to the **amine** using borohydride. All reactions took place in aq. media. The purifn. of the oxidized AG from the oxidizing agent was essential to prevent oxidative degrdn. of AmB at the coupling step. The authors investigated the effects of AmB to AG ratio, buffer type, and reaction pH on the reaction yield, mol. wt., conjugate activity against pathogenic yeast and hemolytic activity. The optimum coupling conditions were buffer borate 0.1 m, pH 11 at room temp. for 48 h. Lower toxicity in vivo was achieved by using low-pressure gel permeation chromatog. and applying the soln. of AmB-AG conjugate through a Sephadex column. Both **amine** and **imine** AmB-AG conjugates were sol. in water and exhibited improved stability in aq. solns. as compared to the unbound drug. The conjugates showed comparable min. inhibitory concn. (MIC) values against Candida albicans. The conjugates were about 60 times less hemolytic against sheep erythrocytes than the free drug, and about 40 times less toxic in BALB/c mice.
ST amphotericin B **arabinogalactan** conjugate fungicide injection
IT Drug delivery systems
(injections; synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
IT Candida albicans
Erythrocyte
Fungicides
Hemolysis
(synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
IT 1397-89-3DP, Amphotericin B, **arabinogalactan** conjugates
9036-66-2DP, Arabinogalactan, amphotericin B conjugates
RL: ADV (Adverse effect, including toxicity); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
IT **9036-66-2DP, Arabinogalactan,** amphotericin B conjugates
RL: ADV (Adverse effect, including toxicity); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and characterization of novel water sol. amphotericin B-**arabinogalactan** conjugates)
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2001:78427** HCAPLUS
DN **134:152626**
TI A **biodegradable polycation** composition for delivery of an **anionic** macromolecule in **gene therapy**
IN **Domb, Abraham J.**
PA Polygene Ltd., Israel
SO PCT Int. Appl., 66 pp.

CODEN: PIXXD2
DT Patent
LA English
IC ICM C08B037-00
ICS A61K047-36; A61K048-00
CC 63-5 (Pharmaceuticals)
Section cross-reference(s): **33, 44**
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001007486	A1	20010201	WO 2000-IL420	20000718
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1200481	A1	20020502	EP 2000-946249	20000718
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
	JP 2003505473	T2	20030212	JP 2001-512568	20000718
PRAI	IL 1999-131074	A	19990723		
	WO 2000-IL420	W	20000718		

AB The present invention provides a **biodegradable polycation** compn. for delivery of an **anionic** macromol., comprising a **polysaccharide chain** having an amt. of **saccharide** units ranging from 2 to 2000 and at least one grafted **oligoamine** per 5 **saccharide** units, wherein said **oligoamine** is selected from the group consisting of a linear, **branched** and cyclic alkyl **amine** having at least two **amino** groups, examples of said **anionic** macromols. are **plasmid**, an **oligonucleotide**, an **antisense**, a **peptide**, a **protein**, a **polysaccharide** and **combinations** thereof, and said **polysaccharide chains** are selected from the group consisting of **dextrans**, **arabinogalactan**, **pullulan**, **cellulose**, cellobiose, **inulin**, **chitosan**, **alginates** and **hyaluronic acid**.

ST **gene therapy polysaccharide polyamine** graft **anionic** macromol delivery; **biodegradable polycation gene therapy anionic** macromol delivery; **oligoamine** graft **polysaccharide gene therapy biodegradable polycation**; **plasmid** delivery **gene therapy biodegradable polycation**; **oligonucleotide** delivery **gene therapy biodegradable polycation**; **antisense** delivery **gene therapy biodegradable polycation**; **peptide** delivery **gene therapy biodegradable polycation**; **protein** delivery **gene therapy biodegradable polycation**; **dextran** graft **biodegradable polycation gene therapy**; **chitosan** graft **biodegradable polycation gene therapy**; **alginate** graft **biodegradable polycation gene therapy**; **hyaluronic acid** graft **biodegradable polycation gene therapy**; **arabinogalactan** graft **biodegradable polycation gene therapy**; **polycation gene therapy**; **pullulan** graft

biodegradable polycation gene therapy
; cellobiose graft **biodegradable polycation**
gene therapy; inulin graft
biodegradable polycation gene therapy

IT **Biodegradable** materials
Gene therapy
(a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

IT **Polysaccharides, biological studies**
RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(conjugates; a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

IT **Polysaccharides, biological studies**
RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**polyamine**-grafted; a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

IT **71-44-3DP, Spermine**, grafted products with oxidized **polysaccharides 124-20-9DP, Spermidine**, grafted products with oxidized **polysaccharides 9002-98-6DP**, grafted products with oxidized **polysaccharides 9004-54-0DP, Dextran**, oxidized, **oligoamine** grafted products, biological studies **9036-66-2DP, Arabinogalactan**, oxidized, **oligoamine** grafted products **9057-02-7DP, Pullulan**, oxidized, **oligoamine** grafted products 103493-12-5DP, conjugation products with tosylated **polysaccharides** 168788-09-8DP, conjugation products with tosylated **polysaccharides** 202145-88-8DP, conjugation products with tosylated **polysaccharides** 322728-31-4DP, grafted products with **oligoamine** and **Spermine**
RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

IT 104-15-4, p-Toluenesulfonic acid, uses
RL: MOA (Modifier or additive use); USES (Uses)
(linking agent; a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

IT 288-32-4, Imidazole, reactions 383-63-1, Ethyl trifluoroacetate 501-53-1, Benzyl chloroformate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for terminating agent; a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

IT **71-44-3, Spermine**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant; a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

IT 22129-07-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(terminating agent; a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(4) Peter, D; US 4146515 A 1979 HCAPLUS
(5) The John Hopkins University; WO 9801162 A 1998 HCAPLUS
IT **71-44-3DP, Spermine**, grafted products with oxidized **polysaccharides 124-20-9DP, Spermidine**, grafted products with oxidized **polysaccharides 9002-98-6DP**, grafted products with oxidized **polysaccharides 9004-54-0DP, Dextran**, oxidized, **oligoamine** grafted products, biological studies **9036-66-2DP, Arabinogalactan**, oxidized, **oligoamine** grafted products **9057-02-7DP, Pullulan**, oxidized, **oligoamine** grafted products
RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)
RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_3-NH-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 124-20-9 HCAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

$H_2N-(CH_2)_4-NH-(CH_2)_3-NH_2$

RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

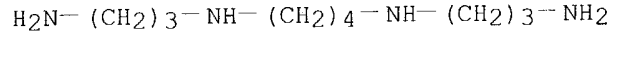
RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9057-02-7 HCAPLUS
CN Pullulan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **71-44-3, Spermine**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant; a **biodegradable polycation** compn. for delivery of **anionic** macromol. in **gene therapy**)
RN 71-44-3 HCAPLUS

CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



L95 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN 2000:846470 HCAPLUS
DN 134:172678
TI Synthesis and heparin-like biological activity of **amino** acid-based polymers
AU Bentolila, Alfonso; Vlodavsky, Israel; Haloun, Christine; **Domb, Abraham J.**
CS Departments of Medicinal Chemistry, School of Pharmacy-Faculty of Medicine, The Hebrew University of Jerusalem, Jerusalem, 91120, Israel
SO Polymers for Advanced Technologies (2000), 11(8-12), 377-387
CODEN: PADTE5; ISSN: 1042-7147
PB John Wiley & Sons Ltd.
DT Journal
LA English
CC 1-3 (Pharmacology)
Section cross-reference(s): **33**, 34, 35
AB Biol. macromols. are important regulators of physiol. functions. Most of the biol. active macromols. are charged linear polymers like some **proteins**, **DNA** and glycosaminoglycans (GAG). Heparin, the first GAG applied in medicine, is a natural **polyanion** composed of repeating **disaccharide** units of **glucosamine** and uronic acid. The **amino** and hydroxyl groups of the **glucosamine** units are partially sulfated. Heparin is a potent anticoagulant, and is also active as an antimethastatic and antiproliferative agent. Sulfatation of other **polysaccharides** such as laminarin yielded very potent new anticoagulants. It was hypothesized that macromols. based on N-acryl L-**amino** acids bearing **hydrophobic** or charged side groups, such as -NH2, -COOH, -SH, -OH and phenols, arranged into a configuration detd. by the chirality of the **amino** acid .alpha.-carbon, may express heparin-like biol. activities. Homo-poly(N-acryl **amino** acids) were synthesized from the corresponding monomers. Polymers with different charge densities, nature of the **amino** acid side group, stereoselectivity and polymeric backbone were tested for their activity as anticoagulants, heparanase inhibition agents, and to basic fibroblast growth factor (b-FGF) release agents bound to the extracellular matrix (ECM). The type of **amino** acid, the polymer backbone, the charge d. and distribution strongly affect the biol. activity exerted by these **polyanions**. All polymers being active either as heparanase inhibitors and/or as b-FGF release agents have at least a neg. charge d. of 1 per **amino** acid residue. Polymers bearing hydrophilic side **chains** that inhibited heparanase, i.e., hydroxyproline, glycine and serine, did not release b-FGF from ECM. The absence of high acidic sulfate-ester groups existing in heparin (hydrophilic) must be compensated by some kind of lipophilic interactions between the **polyanion** and b-FGF in order to effectively compete with heparan sulfate proteoglycanes, causing its release from ECM. Heparanase inhibitors may have clin. **applications** in preventing tumor metastasis and inflammatory/autoimmune processes due to the involvement of this enzyme in the extravasation of blood-borne tumor cells and activated cells of the immune system. Mols. that release ECM-bound b-FGF may be applied to accelerate neovascularization and tissue repair.
ST polyacrylic **amino** acid prepn structure anticoagulant; heparanase inhibitor **amino** acid polyacrylate **polyanion**; basic fibroblast growth factor **polyanion** anticoagulant; smooth muscle antiproliferative **amino** acid polyacrylate; heparinoid

polyacrylic **amino** acid **polysaccharide** anticoagulant

IT Polyelectrolytes
(**anionic**; synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT Structure-activity relationship
(anticoagulant; synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT Extracellular matrix
(b-FGF release from; synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT Structure-activity relationship
(enzyme-inhibiting, heparanase-inhibiting; synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT **Mucopolysaccharides**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(heparinoids; synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT Anticoagulants
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT **Amino** acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT 89800-66-8, Heparanase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(inhibition; synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT 106096-93-9, Basic fibroblast growth factor
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(release from extracellular matrix; synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT 30602-14-3P 59809-33-5P 60474-91-1P 159597-66-7P 192705-82-1P 192705-84-3P 192705-89-8P 192705-92-3P 288325-10-0P 288325-12-2P 288325-16-6P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT 56-41-7DP, L-Alanine, conjugates with **arabinogalactan** or **dextran**, biological studies 60-18-4DP, L-Tyrosine, conjugates with **arabinogalactan** or **dextran**, biological studies 61-90-5DP, L-Leucine, conjugates with **arabinogalactan** or **dextran**, biological studies **9004-54-0DP, Dextran**, conjugates with alanine, leucine or tyrosine, biological studies **9036-66-2DP, Arabinogalactan**, conjugates with alanine, leucine or tyrosine
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT 9005-49-6, Heparin, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT 56-40-6, Glycine, reactions 147-85-3, Proline, reactions 687-64-9
814-68-6, Acryloyl chloride 1119-33-1, Ethyl L-glutamate 1499-46-3
1499-56-5 16874-12-7 21691-53-2 81102-38-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

IT 186349-24-6P 288325-08-6P 326488-88-4P 326488-89-5P 326488-90-8P
326488-91-9P 326488-92-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(2) Anon; Heparin and Related Polysaccharides 1989, V556
(3) Bar-Ner, M; Blood 1987, V70, P551 HCAPLUS
(4) Bar-Ner, M; J Cell Physiol 1986, V128, P299 HCAPLUS
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IT **9004-54-0DP, Dextran**, conjugates with alanine, leucine or tyrosine, biological studies **9036-66-2DP, Arabinogalactan**, conjugates with alanine, leucine or tyrosine
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(synthesis and heparin-like activity of **amino** acid-based **polyanions**)

RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:208556** HCAPLUS
DN **133:79171**
TI Generation of photopolymerized membrane mimetic monolayer on an **alginate/poly**-L-**lysine** coacervate
AU Liu, Hongbo; Orban, Janine M.; Chaikof, Elliot L.
CS Laboratory for Biomolecular Materials Research Department of Surgery and Bioengineering, Emory University, Atlanta, GA, 30322, USA
SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2000), 41(1), 1036-1037
CODEN: ACPPAY; ISSN: 0032-3934
PB American Chemical Society, Division of Polymer Chemistry
DT Journal
LA English
CC 63-5 (Pharmaceuticals)
Section cross-reference(s): 38
AB A new biomimetic approach was described for generating an ultrathin org. barrier with the capacity for tailored transport and surface properties based upon a membrane-mimetic strategy. A stable, lipid membrane-like bilayer was produced on a hydrated **alginate** substrate. The **modification** of a **poly**(L-**lysine**) (PLL)-**alginate** coacervate with a membrane-mimetic monolayers has been successfully prepd. by the design of an **amphiphilic** polymer with dialkyl side **chains**, flexible spacer groups, and **anionic** substituents which anchor the polymer to a **cationic** surface. After lipid vesicle fusion to the alkylated hydrogel, the lipid assembly is stabilized via in situ photopolymn. Contact angle measurements were used to confirm and monitor film formation and stability. The assembly was stable for up to 4 wk in water. Ellipsometry data provided valuable supporting information.
ST polymer membrane mimetic **alginate polylysine** coacervate; controlled drug delivery polymer membrane mimetic
IT Aggregates
(coacervates; generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)
IT Drug delivery systems
(controlled-release; generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)
IT Contact angle
(generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)
IT Membrane, biological
(mimetics; generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)
IT 278803-41-1P
RL: PNU (Preparation, unclassified); RCT (Reactant); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)
IT 225239-50-9P
RL: PNU (Preparation, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)
IT **9005-32-7, Alginic acid 25104-18-1, Poly**(L-**lysine**) **38000-06-5, Poly**(L-**lysine**)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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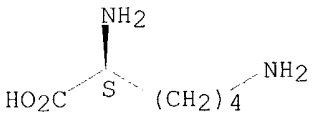
IT **9005-32-7, Alginic acid 25104-18-1, Poly(L-lysine) 38000-06-5, Poly(L-lysine)**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(generation of photopolymd. membrane mimetic monolayer on **alginate/polylysine** coacervate)
RN 9005-32-7 HCAPLUS
CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 25104-18-1 HCAPLUS
CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

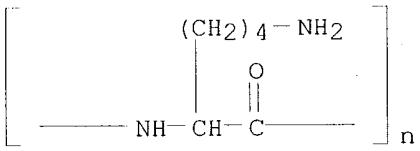
CM 1

CRN 56-87-1
CMF C6 H14 N2 O2

Absolute stereochemistry.



RN 38000-06-5 HCAPLUS
CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:102471** HCAPLUS
DN **132:255934**
TI Biomedical **coatings** by the covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces
AU Dai, Liming; StJohn, Heather A. W.; Bi, Jingjing; Zientek, Paul; Chatelier, Ronald C.; Griesser, Hans J.
CS CSIRO Molecular Science, Clayton, 3169, Australia
SO Surface and Interface Analysis (2000), 29(1), 46-55
CODEN: SIANDQ; ISSN: 0142-2421
PB John Wiley & Sons Ltd.
DT Journal
LA English
CC 63-7 (Pharmaceuticals)
AB As the surface properties of polymeric biomaterials play an important role in the performance of biomedical devices, highly hydrophilic, ultrathin

coatings were applied onto **hydrophobic**, perfluorinated and organosilicon polymers by the covalent immobilization of **polysaccharides** using a reductive amination reaction. Gas plasma (r.f. glow discharge) methods were employed to equip the surfaces of these normally unreactive polymeric substrates with chem. groups capable of reacting with **polysaccharides** in aq. soln. In one variant, ammonia plasmas were used to introduce into the polymer surfaces a submonolayer of **amine** groups. Alternatively, an n-**heptylamine** process vapor was used to deposit a thin plasma polymer film that possessed surface **amine** groups. The **polysaccharides** were activated for covalent immobilization by periodate oxidn., which produced hemiacetal structures, as revealed by NMR and XPS. The hemiacetal structures in the **polysaccharide chains** were reacted with the surface **amine** groups on the polymers. The resulting Schiff base linkages were stabilized by redn. to secondary **amine** linkages using sodium cyanoborohydride. Detailed surface anal. is important for **verification** that the intended chemistries have indeed been achieved in such multilayer **coating** schemes. XPS provided a thickness est. of 1 .+-. 0.3 nm for the **polysaccharide coatings** in the dehydrated state.

ST biomedical **coating polysaccharide** plasma polymer surface

IT Prosthetic materials and Prosthetics
Wettability
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT Fluoropolymers, biological studies
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT **Coating** process
(plasma spraying; biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT 111-68-2, **Heptylamine**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

IT **9004-54-0D, Dextran**, oxidized, biological studies
25067-11-2, Teflon fep 87842-32-8, Poly(1-trimethylsilyl-1-propyne)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)

RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **9004-54-0D, Dextran**, oxidized, biological studies
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biomedical **coatings** by covalent immobilization of **polysaccharides** onto gas-plasma-activated polymer surfaces)
RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **2000:10613** HCAPLUS
DN **132:69331**
TI Drug conjugates with oxidized **arabinogalactan** or **dextran**
IN **Domb, Abraham J.**; Benita, Shimon; Polacheck, Itzhack; Linden, Galina
PA Yissum Research Developement Company of the Hebrew University of Jerusalem, Israel
SO U.S., 10 pp., Cont. of U.S. Ser. No. 780,677, abandoned.
CODEN: USXXAM
DT Patent
LA English
IC ICM A61K037-02
ICS A61K037-36; C07K013-00
NCL 514008000
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1, **33**, 34
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6011008	A	20000104	US 1998-90587	19980604

PRAI US 1997-780677 19970108

AB A method for producing a water-sol. **polysaccharide** conjugate of an oxidn.-sensitive substance is described. The method comprises the following steps: (a) activating the **polysaccharide** to a dialdehyde by periodate oxidn.; (b) purifying the dialdehyde from interfering **anions** and byproducts; and (c) coupling the substance to the purified dialdehyde by Schiff base formation to form the conjugate. Optionally, the conjugate of step (c) is reduced to an **amine** conjugate by a reducing substance. The product conjugate may then be further purified from various reaction byproducts. The disclosed method results in the substance substantially retaining its biol. activity. Also described are **imine** and **amine** **polysaccharide** conjugates of various drugs and **polypeptides**. E.g., doxorubicin was conjugated with oxidized **dextran** and oxidized **arabinogalactan**.

ST drug conjugate oxidized **dextran arabinogalactan**

IT **Peptides**, biological studies
Polysaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(conjugates; drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT Anti-inflammatory agents
Antimicrobial agents
Antitumor agents
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 50-07-7DP, Mitomycin c, conjugates with oxidized **arabinogalactan**
1404-26-8DP, Polymyxin b, conjugates with oxidized **arabinogalactan**
23214-92-8DP, Doxorubicin, conjugates with oxidized **arabinogalactan** or **dextran**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT **9004-54-0DP, Dextran**, oxidized, conjugates with drugs, biological studies **9036-66-2DP, Arabinogalactan**, oxidized, conjugates with drugs 37317-99-0DP, **Dextran** dialdehyde, conjugates with drugs
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 56-40-6, Glycine, reactions 33069-62-4, Taxol
RL: RCT (Reactant); RACT (Reactant or reagent)
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 117527-59-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 50-02-2DP, Dexamethasone, conjugates with oxidized **arabinogalactan**
89-57-6DP, 5-**Aminosalicylic** acid, conjugates with oxidized **arabinogalactan** 1400-61-9DP, Nystatin, conjugates with **dextran** 1403-66-3DP, Gentamicin, conjugates with oxidized **arabinogalactan** 9004-10-8DP, Insulin, conjugates with oxidized **arabinogalactan**, biological studies 32986-56-4DP, Tobramicin, conjugates with oxidized **arabinogalactan** 51110-01-1DP, Somatostatin, conjugates with oxidized **arabinogalactan** 117527-59-0DP, conjugates with oxidized **arabinogalactan**

RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

IT 50-56-6, Oxytocin, biological studies 58-14-0, **Pyrimethamine** 58-82-2, Bradykinin 59-05-2, Methotrexate 68-35-9, Sulfadiazine 80-08-0, Dapsone 738-70-5, Trimethoprim 2022-85-7, Flucytosine 9007-12-9, Calcitonin 9034-40-6, LHRH 11000-17-2, Vasopressin 20830-81-3, Daunorubicin 24305-27-9, Trf
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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IT **9004-54-0DP, Dextran**, oxidized, conjugates with drugs, biological studies **9036-66-2DP, Arabinogalactan**, oxidized, conjugates with drugs
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug conjugates with oxidized **arabinogalactan** or **dextran**)

RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **1999:468575** HCAPLUS
DN **131:106842**
TI Polymeric carriers for delivery of bioactive agents
IN **Domb, Avraham J.**; Zehavi, Zeev
PA Efrat Biopolymers Ltd., Israel
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K047-34
CC 63-6 (Pharmaceuticals)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9936100	A2	19990722	WO 1999-IL23	19990114
	WO 9936100	A3	19990923		

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TR,

TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 9918889	A1	19990802	AU 1999-18889	19990114	
EP 967998	A2	20000105	EP 1999-900284	19990114	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
JP 2001515522	T2	20010918	JP 1999-536971	19990114	
PRAI IL 1998-122933	A	19980114			
WO 1999-IL23	W	19990114			

AB The invention provides a polymeric carrier for delivery of a bioactive or bioreactive mol., comprising a stereocomplex of at least one biocompatible stereoselective polymer and a bioactive or bioreactive mol. L-Polylactide (1 g, mol. wt. 30,000) and D-polylactide (1 g, mol. wt. 30,000) were added to 70 mL acetonitrile at 60.degree.. A clear soln. became turbid after 4-5 h and after 2 days at 60.degree., a heavy white solid pptd. After 3 days, the soln. was filtered and the stereocomplex was collected and dried in vacuum over night. Methotrexate was incorporated in the above stereocomplex in the form of a powder and the mixt. was compression molded to form tablets.

ST polymer stereo complex drug carrier; polylactide stereo complex methotrexate tablet

IT Drug delivery systems
(beads; polymeric carriers for delivery of bioactive agents)

IT **Proteins**, specific or class
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biol. active; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(enteric; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(gels; polymeric carriers for delivery of bioactive agents)

IT Carboxylic acids, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydroxy, polymers; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(implants; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(ointments, creams; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(ointments; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(parenterals; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(particles; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(pastes; polymeric carriers for delivery of bioactive agents)

IT Drug delivery systems
(pellets; polymeric carriers for delivery of bioactive agents)

IT **Plasmids**
Vaccines
Virus vectors
(polymeric carriers for delivery of bioactive agents)

IT Albumins, biological studies
Antisense oligonucleotides
Blood-coagulation factors
Carbohydrates, biological studies
Gene
Growth factors, animal
Hormones, animal, biological studies
Lipids, biological studies

Nucleotides, biological studies
Oligonucleotides
Peptides, biological studies
Polyamides, biological studies
Polyanhydrides
Polycarbonates, biological studies
Polyesters, biological studies
Polyoxyalkylenes, biological studies
Polysaccharides, biological studies
Proteins, general, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymeric carriers for delivery of bioactive agents)

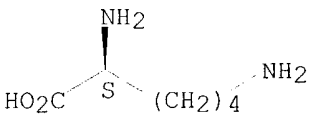
IT Drug delivery systems
(tablets; polymeric carriers for delivery of bioactive agents)

IT **56-87-1, Lysine**, biological studies 59-05-2, Methotrexate **71-44-3, Spermine 124-20-9, Spermidine** 9001-92-7, Protease 9002-88-4, Polyethylene 9034-40-6, LHRH 15687-27-1, Ibuprofen 24305-27-9, TRH **25104-18-1, Polylysine** 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26680-10-4, Polylactide 26917-25-9 **38000-06-5, Polylysine** 74381-53-6, Leuprolide acetate 106989-11-1, D-Lactic acid polymer 129426-81-9 149479-29-8 151879-73-1, ISIS 3521
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymeric carriers for delivery of bioactive agents)

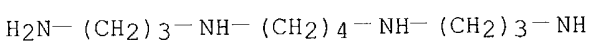
IT **56-87-1, Lysine**, biological studies **71-44-3, Spermine 124-20-9, Spermidine** **25104-18-1, Polylysine 38000-06-5, Polylysine**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymeric carriers for delivery of bioactive agents)

RN 56-87-1 HCAPLUS
CN L-Lysine (9CI) (CA INDEX NAME)

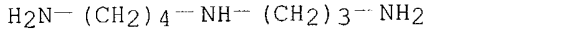
Absolute stereochemistry.



RN 71-44-3 HCAPLUS
CN 1,4-Butanediamine, N,N'-bis(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)



RN 124-20-9 HCAPLUS
CN 1,4-Butanediamine, N-(3-aminopropyl)- (8CI, 9CI) (CA INDEX NAME)

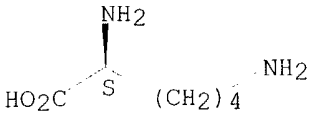


RN 25104-18-1 HCAPLUS
CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

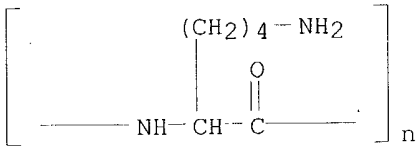
CM 1

CRN 56-87-1
CMF C6 H14 N2 O2

Absolute stereochemistry.



RN 38000-06-5 HCAPLUS
CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **1999:339444** HCAPLUS
DN **130:343042**
TI Biocompatible polymeric **coatings** for cell culture substrate and medical devices
IN **Domb, Abraham Jacob**
PA Alomone Labs Ltd., Israel
SO Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM A61L029-00
ICS A61L031-00
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 9, 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 914835	A2	19990512	EP 1998-309089	19981105
	EP 914835	A3	20010321		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6127448	A	20001003	US 1998-189101	19981109
PRAI	IL 1997-122153	A	19971110		

AB The invention provides a biocompatible polymeric **coating** material selected from the group consisting of linear, dendrimeric and **branched** polymers which contain primary, secondary, tertiary or quaternary **amine** groups with **hydrophobic** side **chains** and which polymers are insol., or only slightly sol., in aq. soln. at pH 3-11 and sol. in at least one org. solvent selected from the group consisting of alcs., acetone, Me Et ketone, THF, dioxane, chloroform, dichloromethane, hexanes, mixts. thereof and mixts. of any of the above with water. The invention also provides the use of such a polymeric material in a biocompatible **coating** compn. for substrates such as a cell growth culture substrate or a medical device. The cell adhesion properties of polystyrene plates **coated** with various **polyamine** derivs. (e.g. stearyl and pentyl derivs. of **polyethylenimine** and **polyvinylamine**) were tested using PC12 neuronal cells.

ST biocompatible polymer **coating** medical prosthetic; cell growth substrate biocompatible polymer **coating**

IT Animal cell line
(P12 neuronal cells; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Animal cell line
(P19; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT **Polysaccharides, biological studies**
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**aminodeoxy**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Blood vessel
(artificial; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Medical goods
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Dendritic polymers
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Polymers, biological studies
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**branched**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Medical goods
(catheters; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Polyelectrolytes
(**cationic**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Fluorescent dyes
(compn. contg.; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Containers
(glass, for storage of polymer **coating** compns.; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Polymers, biological studies
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(linear; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT Prosthetic materials and Prosthetics
(orthopedic; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT **Polyamines**
Polyamines
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**polyamide-**; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)
IT **Polyamides**, biological studies
Polyamides, biological studies
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**polyamine-**; biocompatible polymeric **coatings** for

cell growth culture substrate and medical devices)

IT Antibodies
Hormones, animal, biological studies
Receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(polymer **coatings** suitable for attachment of; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Alcohols, properties
RL: PRP (Properties)
(polymers soly. in; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Glass beads
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(porous; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Medical goods
(sponges; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Medical goods
(stents; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Animal tissue culture
(substrates for growth of; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Cell adhesion
(substrates for; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT Plates
(tissue culture; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT 9061-61-4, Nerve growth factor
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT 74-88-4D, Methyl iodide, reaction products with **polyethylenimine** 79-10-7D, Acrylic acid, polymers, alkylated 112-67-4D, Palmitoyl chloride, reaction products with **polyethylenimine** 112-76-5D, Stearyl chloride, reaction products with **polyethylenimine** 543-59-9D, n-Pentyl chloride, reaction products with **polyethylenimine** 593-67-9D, **Vinylamine**, polymers, alkylated 1002-69-3D, Decyl chloride, reaction products with **polyethylenimine** 3386-33-2D, n-Octadecyl chloride, reaction products with **polyethylenimine** **9002-98-6D**, **Polyethylenimine**, alkylated **24937-49-3D**, **Polyornithine**, alkylated **25104-12-5D**, **Polyornithine**, alkylated **25104-18-1D**, **Poly**(L-**lysine**), alkylated 26336-38-9D, Poly(**vinylamine**), alkylated **26913-06-4D**, **Polyethylenimine**, SRU, alkylated **38000-06-5D**, **Poly**(L-**lysine**), alkylated 49791-22-2D, Decanoyl bromide, reaction products with **polyvinylamine** 224312-22-5 224312-24-7
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT 56-81-5, Glycerin, uses 25322-68-3, Polyethylene glycol
RL: MOA (Modifier or additive use); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

IT 67-64-1, Acetone, properties 67-66-3, Chloroform, properties 75-09-2,

Dichloromethane, properties 78-93-3, Methyl ethyl ketone, properties 109-99-9, Tetrahydrofuran, properties 110-54-3, Hexane, properties 123-91-1, Dioxane, properties
RL: PRP (Properties)
(polymers soly. in; biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

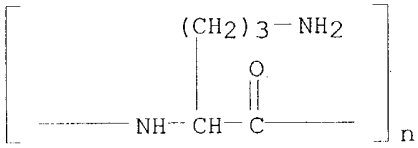
IT **9002-98-6D, Polyethylenimine**, alkylated
24937-49-3D, Polyornithine, alkylated
25104-12-5D, Polyornithine, alkylated
25104-18-1D, Poly(L-**lysine**), alkylated
26913-06-4D, Polyethylenimine, SRU, alkylated
38000-06-5D, Poly(L-**lysine**), alkylated
RL: DEV (Device component use); POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biocompatible polymeric **coatings** for cell growth culture substrate and medical devices)

RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

RN 24937-49-3 HCAPLUS
CN Poly[imino[(1S)-1-(3-aminopropyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)

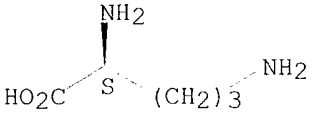


RN 25104-12-5 HCAPLUS
CN L-Ornithine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 70-26-8
CMF C5 H12 N2 O2

Absolute stereochemistry.

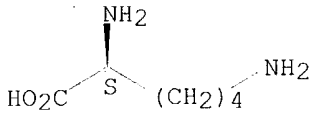


RN 25104-18-1 HCAPLUS
CN L-Lysine, homopolymer (9CI) (CA INDEX NAME)

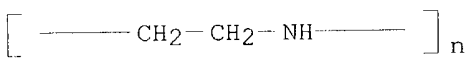
CM 1

CRN 56-87-1
CMF C6 H14 N2 O2

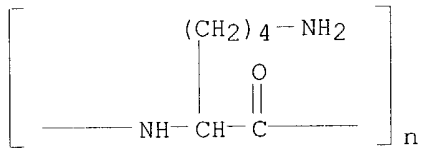
Absolute stereochemistry.



RN 26913-06-4 HCAPLUS
CN Poly[imino(1,2-ethanediyl)] (9CI) (CA INDEX NAME)



RN 38000-06-5 HCAPLUS
CN Poly[imino[(1S)-1-(4-aminobutyl)-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



L95 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **1996:391632** HCAPLUS
DN **125:58986**
TI Preparation of water-soluble polyene antibiotic-**polysaccharide** conjugates as antifungals.
IN Linden, Galina; **Domb, Abraham J.**; Polacheck, Itzhack; Benita, Shimon
PA Helfgott and Karas, P. C., USA; Yissum Research Development Company of the Hebrew University
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07H017-08
ICS C08B037-00; C08B037-02; A61K031-70; A61K031-715; A61K039-395; A61K039-44
CC 33-7 (**Carbohydrates**)
Section cross-reference(s): 1
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9605212	A1	19960222	WO 1995-US10522	19950816
W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5567685	A	19961022	US 1994-291292	19940816
IL 114796	A1	20000217	IL 1995-114796	19950801

	AU 9533673	A1	19960307	AU 1995-33673	19950816
	EP 776329	A1	19970604	EP 1995-930205	19950816
	EP 776329	B1	20030102		
	R: DE, FR, GB, IT				
	JP 10504347	T2	19980428	JP 1995-507622	19950816
PRAI	US 1994-291292	A	19940816		
	WO 1995-US10522	W	19950816		

AB A substantially stable H2O-sol. conjugate of a **polysaccharide** and an unoxidized, biol. active polyene antibiotic, conjugated to the **polysaccharide** by an **imine** or **amine** bond, is claimed. Thus, **dextran**-40 was oxidized with KIO4 in H2O for 2 h to give dialdehyde **dextran** (DAD), which was purified on Dowex-1. The DAD soln. was stirred with nystatin in borate buffer at pH 8.9 for 16 h to give the H2O-sol. (100 mg/mL) **imine** conjugate in .gtoreq.95% yield. The conjugate had >2 times the activity of nystatin itself against various fungi.

ST nystatin **polysaccharide** conjugate prepn antifungal; polyene antibiotic **polysaccharide** conjugate prepn antifungal

IT Fungicides and Fungistats
(nystatin and amphotericin B conjugates; prepn. of water-sol. polyene antibiotic-**polysaccharide** conjugates)

IT Antibiotics
(polyene; prepn. of water-sol. polyene antibiotic-**polysaccharide** conjugates)

IT **Polysaccharides, preparation**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of water-sol. polyene antibiotic-**polysaccharide** conjugates)

IT 1397-89-3DP, Amphotericin B, conjugates with **polysaccharides**
1400-61-9DP, Nystatin, conjugates with **polysaccharides**
9004-54-0DP, Dextran, conjugates with antibiotics
9036-66-2DP, Arabinogalactan, conjugates with nystatin and amphotericin B 37317-99-0DP, **Dextran** dialdehyde, conjugate with nystatin
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of water-sol. polyene antibiotic-**polysaccharide** conjugates)

IT **9004-54-0DP, Dextran**, conjugates with antibiotics
9036-66-2DP, Arabinogalactan, conjugates with nystatin and amphotericin B
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of water-sol. polyene antibiotic-**polysaccharide** conjugates)

RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9036-66-2 HCAPLUS
CN D-Galacto-L-arabinan (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **1996:246191** HCAPLUS
DN **124:306647**
TI Nystatin-**dextran** conjugates: synthesis and characterization
AU **Domb, Abraham J.**; Linden, Galina; Polacheck, Itzhack; Benita,

Simon
CS Department Pharmaceutical Chemistry, Hebrew University Jerusalem, Jerusalem, 91220, Israel
SO Journal of Polymer Science, Part A: Polymer Chemistry (1996), 34(7), 1229-36
CODEN: JPACEC; ISSN: 0887-624X
PB Wiley
DT Journal
LA English
CC 1-5 (Pharmacology)
Section cross-reference(s): **33**, 34
AB The coupling of nystatin (Nys), a water-insol. antifungal agent, to **dextran** via an **imine** or **amine** bond was systematically investigated. **Dextran** was first oxidized to dialdehyde **dextran** using potassium periodate, purified from the oxidizing agent, and reacted with Nys to form the Schiff base. The Schiff base was reduced to the **amine** using borohydride. All reactions took place in water. The purifn. of the oxidized **dextran** from the oxidizing agent was essential to prevent oxidative degrdn. of Nys at the coupling step. The effects on the coupling yield of the following factors: **dextran** mol. wt., degree of oxidn. (aldehyde content), Nys to **dextran** ratio, temp., and reaction pH were studied. A 95% coupling yield was obtained at the optimized coupling conditions: pH 8.9 .+-. 0.1, 50% degree of oxidn., and initial ratio of Nys to dialdehyde **dextran** 1:2.5. In all expts., **dextran** was decreased in mol. wt. during the oxidn. step. Both **imine** and **amine** forms of Nys-**dextran** conjugates were sol. in water and exhibited improved stability in aq. solns. as compared to the unbound drug. The conjugates showed comparable min. inhibitory concn. (MIC) values against Candida albicans and Cryptococcus neoformans. The conjugates were about 25 times less toxic than free Nys after a single injection in mice.
ST nystatin **dextran** conjugate prepn fungicide
IT Fungicides and Fungistats
(prepn. and fungicidal activity of nystatin-**dextran** conjugate)
IT 1400-61-9DP, Nystatin, conjugates with **dextran** 37317-99-0DP, **Dextran** dialdehyde, conjugates with nystatin
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(prepn. and fungicidal activity of nystatin-**dextran** conjugate)
IT 1400-61-9, Nystatin **9004-54-0, Dextran,** reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. and fungicidal activity of nystatin-**dextran** conjugate)
IT **9004-54-0, Dextran,** reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. and fungicidal activity of nystatin-**dextran** conjugate)
RN 9004-54-0 HCAPLUS
CN Dextran (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L95 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **1996:75045** HCAPLUS
DN **124:186263**
TI Novel **polysaccharide** surfactants: the effect of **hydrophobic** and hydrophilic **chain** length on surface active properties
AU Zhang, Tianhong; Marchant, Roger E.
CS Departments Biomedical Engineering Macromolecular Science, Case Western

Reserve University, Cleveland, OH, 44106, USA
SO Journal of Colloid and Interface Science (1996), 177(2), 419-26
CODEN: JCISA5; ISSN: 0021-9797
PB Academic
DT Journal
LA English
CC 66-1 (Surface Chemistry and Colloids)
AB A series of nonionic **saccharide** surfactants with an **amide** group linking hydrophilic **saccharide** segment to **hydrophobic** alkyl segment were synthesized and their surface active properties were detd. We **examine** the effects of **hydrophobic** and hydrophilic **chain** lengths on the surface active properties and correlate our results to structural differences in the **saccharide** surfactants. N-**Alkylmaltonamides** were synthesized with hexyl, octyl, decyl, dodecyl, and octadecyl alkyl segments and N-dodecyl **aldonamides** were synthesized with glucose, maltose, and **dextran** (DP = 9) **saccharide** segments. Increasing the alkyl **chain** length in N-**alkylmaltonamides** decreases the crit. micelle concn., and increases the efficiency of reducing water surface tension and **emulsification** ability, but the effectiveness in reducing water surface tension is about the same. Increasing the **saccharide** size in N-dodecyl **aldonamides** from glucose to maltose to **dextran** increases the crit. micelle concn., decreases the efficiency and effectiveness of reducing water surface tension, but has little effect on **emulsification** properties. We show that the size of the **saccharide** segment is important in detg. the interfacial surface area occupied by the surfactant mols. An octyl, decyl, or dodecyl **maltonamide** occupies about 40 .ANG.2 at the air/water interface, but this increases to 60 .ANG.2 when maltose is replaced by the larger **dextran**.
ST **polysaccharide** surfactant surface activity; **chain** hydrophilic **hydrophobic polysaccharide** surface activity
IT **Chains**, chemical
(hydrophilic and **hydrophobic chain** segment effect on surface activity of **polysaccharide** surfactants)
IT Surfactants
(hydrophilic and **hydrophobic chain**-segment effect of **polysaccharide** surfactants on surface activity)
IT **Polysaccharides, properties**
RL: PRP (Properties)
(hydrophilic and **hydrophobic chain**-segment effect of **polysaccharide** surfactants on surface activity)
IT Surface activity
(shydrophilic and **hydrophobic chain** segment effect on surface activity of **polysaccharide** surfactants)
IT 69347-07-5 70803-61-1 70803-62-2 81313-49-7 159063-64-6
RL: PRP (Properties)
(hydrophilic and **hydrophobic chain** segment effect on surface activity of **polysaccharide** surfactants)

L95 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2003 ACS
AN **1988:204925** HCAPLUS
DN **108:204925**
TI Synthesis of **polysaccharides** bearing a lipophilic **chain** for the chemical **modification** of enzymes
AU Wakselman, M.; Cabaret, D.
CS CERCOA, CNRS, Thiais, 94320, Fr.
SO Studies in Organic Chemistry (Amsterdam) (1987), 29(Biocatal. Org. Media), 253-60
CODEN: SOCHDQ; ISSN: 0165-3253
DT Journal

LA English
CC 33-4 (Carbohydrates)
Section cross-reference(s): 7, 9
GI For diagram(s), see printed CA Issue.
AB **Amphiphilic** reagents were designed for the chem. **modification** of **proteins**. They possess a lipophilic alkyl **chain**, an hydrophilic part and a reactive functional group. Some reagents of the type were synthesized in which a reducing **disaccharide** contained the hydrophilic region and the reactive group. However, the model reductive alkylation of N.alpha.-Z-L-**lysine** is a slow process. Therefore the synthesis of alkylated **disaccharide** contg. an aldehyde function which is not involved in an hemiacetal formation was undertaken. E.g., I was prepd. but on deacetylation gave a hemiacetal, devoid of aldehyde characteristics.
ST **polysaccharide** lipophilic **chain** enzyme; melibiose acetate allyl; galactopyranose glucopyranose
IT Enzymes
RL: SPN (Synthetic preparation); PREP (Preparation)
(chem. **modification** of, prepn. of **polysaccharides** with lipophilic **chain** for)
IT **Polysaccharides, preparation**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, for chem. **modification** of enzymes)
IT 114389-20-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and deacetylation of)
IT 585-99-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and functionalization of)
IT 104706-92-5P 114370-83-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, with **lysine** deriv.)
IT 114370-85-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reductive ozonolysis of)
IT 104706-87-8P 104706-92-5DP, reaction products with **lysine** 114370-83-1DP, reaction products with **lysine** 114370-86-4P 114370-87-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
IT 2212-75-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(reductive alkylation of, with **disaccharides**)
IT 114370-84-2 114389-19-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reductive ozonolysis of)

=> d his

(FILE 'HOME' ENTERED AT 17:34:33 ON 09 APR 2003)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 17:34:41 ON 09 APR 2003
E DOMB A/AU
L1 236 S E2-E11
E POLYSACCHARIDE/CT
L2 42339 S E13
L3 22160 S E49
L4 13077 S E50-E60

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                E POLYSACCHARIDE/CW
L5          42342 S E3,E4
L6             15 S L1 AND L2-L5
L7              9 S L1 AND CARBOHYDRATE?/SC,SX
L8             19 S L6,L7

     FILE 'REGISTRY' ENTERED AT 17:38:59 ON 09 APR 2003
L9             11 S 9004-54-0 OR 9036-66-2 OR 9057-02-7 OR 9004-34-6 OR 9005-80-5
                E CELLOBIOS
                E CELLOBIOS/CN
                E CELLOBIOS/CN
                E CELLOBIOS

     FILE 'HCAPLUS' ENTERED AT 17:40:50 ON 09 APR 2003
L10        111986 S L9
L11            24 S L1 AND L10
L12            28 S L8,L11

     FILE 'REGISTRY' ENTERED AT 17:41:46 ON 09 APR 2003
L13             1 S 528-50-7

     FILE 'HCAPLUS' ENTERED AT 17:42:22 ON 09 APR 2003
L14          3754 S L13
L15             1 S L1 AND L14
L16            28 S L12,L15
L17        380619 S DEXTRAN OR ARABINOGALACTAN OR PULLULAN OR CELLULOSE OR INULIN
L18            76 S ALDARIC ACID
L19            32 S L1 AND L17,L18
L20            36 S L16,L19
L21            12 S L20 AND ?CATION?
L22             6 S L20 AND OLIGOAMIN?
L23            14 S L20 AND (AMIN? OR IMIN? OR AMID? OR CARBAM?)

     FILE 'REGISTRY' ENTERED AT 17:46:41 ON 09 APR 2003
L24             9 S 56-87-1 OR 923-27-3 OR 70-54-2 OR 70-26-8 OR 348-66-3 OR 616-
L25             2 S 71-44-3 OR 124-20-9
L26             3 S 26913-06-4 OR 151-56-4 OR 9002-98-6

     FILE 'HCAPLUS' ENTERED AT 17:47:15 ON 09 APR 2003
L27         59745 S L24
L28         10378 S L25
L29         12532 S L26
L30        185194 S SPERMINE OR SPERMIDINE OR LYSINE OR ARGININE OR ORNITHINE OR
L31            10 S L20 AND L27-L30
L32            17 S L22,L23,L31
L33            10 S L21 AND L32
L34             7 S L20 AND HYDROPHOB?
L35             1 S L20 AND AMPHIPH?
L36             5 S L34,L35 AND L21-L23,L31-L33
L37            16 S L21-L23,L31-L35 NOT L36
                SEL DN AN 2 5 7 8 10 11 14 15
L38             8 S L37 AND E1-E24
L39            13 S L36,L38
L40             8 S L37 NOT L39
                SEL DN AN 6
L41             1 S L40 AND E25-E27
                SEL DN AN L40 3
L42             1 S E28
L43            15 S L41,L42,L39 AND L1-L8,L10-L12,L14-L23,L27-L42

     FILE 'HCAPLUS' ENTERED AT 17:57:21 ON 09 APR 2003
L44           221 S L1 NOT L43
                SEL RN L43
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     FILE 'REGISTRY' ENTERED AT 17:58:28 ON 09 APR 2003
L45          166 S E29-E194
L46            8 S L45 AND L9,L13
L47           23 S L45 AND UNSPECIFIED
                 SEL RN 8 9 11 13 15 16 17
L48            7 S E195-E201

     FILE 'HCAPLUS' ENTERED AT 18:01:11 ON 09 APR 2003
L49        42869 S L48
L50           24 S L49 AND L1
L51           10 S L50 AND L43
L52           15 S L43,L51
L53           14 S L50 NOT L52
L54       385545 S L14,L49,L17,L18
L55           36 S L1 AND L54,L2-L5
L56           15 S L55 AND L43
L57           21 S L55 NOT L56

     FILE 'REGISTRY' ENTERED AT 18:08:06 ON 09 APR 2003
L58            8 S L46,L48
L59           16 S L47 NOT L58
L60            1 S L59 AND DEXTRAN
L61          142 S L45 NOT L46-L48,L58-L60
L62            7 S L61 AND L24-L26
L63           99 S L61 AND N/ELS NOT L62
L64           10 S L63 AND (C2H8N2 OR C4H12N2 OR C4H13N3 OR C6H16N2 OR C9H24N4 O
L65            8 S L64 NOT DIMETHYL
L66            2 S L64 NOT L65
L67            1 S 107-15-3
                 SEL RN L24
L68         3836 S E202-E210/CRN
L69            2 S L68 AND L61
L70          193 S L68 AND PMS/CI AND HOMOPOLYMER
L71            9 S L70 AND 1/NC
L72           25 S L63 AND PMS/CI NOT L69
L73            2 S L72 AND (C5H10N2O OR C6H12N2O)
L74           20 S L65,L67,L69,L71,L73

     FILE 'HCAPLUS' ENTERED AT 18:19:04 ON 09 APR 2003
L75        47956 S L74
L76       417062 S L2-L5,L54
L77         2495 S L75 AND L76
L78        23412 S L76 AND (OLIGOAMIN? OR SPERMIDINE OR SPERMINE OR LYSINE OR OR
L79        23633 S L77,L78
L80        10813 S L76 AND (PEPTIDE OR POLYPEPTIDE)
L81        32743 S L79,L80
L82          859 S L81 AND HYDROPHOB?
L83          120 S L81 AND AMPHIPHIL?
L84          945 S L82,L83
L85          332 S L84 AND ?CATION?
L86           99 S L85 AND ?SACCHARIDE?
L87           20 S L86 AND CHAIN
                 SEL DN AN 3 8 9 17 19
L88            5 S E211-E225 AND L87
L89           62 S L85 AND L27-L29,L74
                 SEL DN AN 8 12 23 25
L90            4 S E226-E237 AND L89
L91           20 S L56,L88,L90
L92           20 S L91 AND L1-L8,L10-L12,L14-L23,L27-L44,L49-L57,L75-L91
L93           20 S L92 AND (?SACCHARIDE? OR ?AMINE? OR ?IMIN? OR ?AMID? OR ?LYSI
L94           15 S L92 AND (?NUCLEIC? OR ?NUCLEO? OR DNA OR RNA OR ANTISENSE OR
L95           20 S L93,L94
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FILE 'HCAPLUS' ENTERED AT 18:51:49 ON 09 APR 2003
L96 43 S L1 AND P/DT
L97 37 S L96 NOT L95